

Analysis of consumption of insulin in the municipality of Stip from 2011 to 2014

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Introduction

Diabetes mellitus is a syndrome characterized by chronic hyperglycemia and disorder of the metabolism of carbohydrates, protein and fat associated with a relative or absolute lack of insulin secretion and insulin action. Diabetes is one of the most common endocrine disorders, with a tendency of increased growth. It is a consequence of modern lifestyles and the increasing number of internal, genetically conditioned and external etiological triggers. Diabetes is not only medical but also economic and social problem (Brunton, 2008).

Diabetes mellitus - type 1 is a disease of the young people - children, adolescents and adults. Insulin is part of their daily treatment because without it the outcome is fatal (Haycox, 2004; Heise et al., 2004).

Diabetes mellitus - type 2 covers 90% of all cases, 90% of insulin therapy, while the rest use the pill therapy. Average daily dose of insulin is about 40 IE (International Units) (Alberti and Zimmet, 1998).

The optimal insulin therapy should induce physiological insulin secretion. Insulin analogues have different absorption, distribution, metabolism and elimination in terms of human insulin. This enables the analogues to get approximately closer to the human insulin (Nathan et al., 2009).

Insulin that are required for patients in the Municipality of Stip are obtained and issued by the hospital pharmacy at PHI Clinical Hospital Stip. Until 2012 year they were obtained under the Law on public procurement, through tenders organized by the hospital. Since 2012, insulins strips to measure blood sugar, insulin needles, pens and kits are obtained through centralized procurement by the Ministry of Health.

The purpose of this paper is to realize the changes in the variety and number of consumed units of insulin PHI Clinical Hospital Stip given the type of mostly used insulin per producer, strips to measure blood sugar, insulin needles, pens and whales in Stip diabetes center in the period from 2011 to 2014.

Materials and methods

The research and evaluation of the spent insulin's is based on the data of the consumption of insulin in the period from 2011 to 2014 received from the Hospital pharmacy in PHI Clinical Hospital Stip.

The data is arranged by type and origin of insulin preparations, summed by year and made a comparison of consumption and variety. The results are expressed in number of packages.

Descriptive method was used in data processing.

Results and discussion

According to data from the Diabetes Centre in Stip, insulin's consumption in 2011, 2012, 2013 and 2014 continues to grow. The hospital has purchased various types of insulin, according to the events, and generics manufacturer.

Insulin consumption in 2011 was 34932 insulins units from different manufacturers with different types of action, with 16 trade names. Over the coming years, the consumption increased. In 2012 was 36932 packages from 16 trade names, in 2013 increased to 41597 packages from 12 trade names, while in 2014 the consumption of insulin reaches up to 46460 from 11 trade names. The highest consumption in all four years has insulin NovoMix "30" / Flexpen 3 ml / 300, which is a generic Insulin aspart, and belongs to a group of

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insulin's with average-long acting and it is combined with long-acting insulin's. Its consumption in 2011, 2012, 2013 and 2014 was 9656, 13573, 18426 and 15950 respectively.

Since 2013, there was reduced range of insulins used under the trade name and manufacturer, as a result of the centralized supply of insulin from the Ministry of Health. This measure is taken because of the steady rise in consumption of insulin, which is probably due to the increased number of patients with diabetes, early detection and timely same passage of patients with insulin dependent diabetes treated with insulin. With centralized procurement there is provided lower range of branded insulin, low prices, total costs and reliability in the supply of sufficient quantities to meet the increased needs.

In the research there are processed the spending strips to measure blood sugar, needles and other accessories. In 2012 and 2013, we issued a number of different types of strips to measure blood sugar depending on the type of the glucometar. While in 2014 was issued only one type of strips for measuring blood sugar and it is called Trueressult. In 2012 there are issued 63600 boxes of strips to measure blood sugar, while in 2013 consumption increased by 29% and amounted to 89650. In 2014 there are issued 115620 strips to measure blood sugar levels from Trueressult and that consumption increased by 22%. The highest consumption of strips to measure blood sugar levels in 2012 are from Roche Accucheck Nano 1/50 and it was 28250.

Consumption needle apparatus for measuring blood sugar in 2011 was 67711. In 2012 the use of the needles increased by 16.8% and amounted to 81391, in 2013 increased by 22.6% and amounted to 105178 needles. In 2014 we have reduced the use of needles by about 10% and it amounts to 94639 needles.

The rising use of bands for measuring glucose in the blood and needle apparatus for measuring the sugar is partly due to the growing number of diabetics, and it is a part of a program of measures introduced by the Government of the Republic of Macedonia by introducing centralized procurement of insulin and stripes for measuring blood sugar.

Conclusion

Consumption of insulin in 2011, 2012, 2013 and 2014 PHI Clinical Hospital Stip continues to grow. The highest

consumption of fast-acting insulin, while the consumption of insulins intermediate - long action in the last two years completely replaced with insulins medium - long-acting combined with long-acting;

Since 2013, decreased variety of insulins used under the trade name and the manufacturer, which is a result of the centralized supply of insulin from the Ministry of Health

Increasing use of strips to measure blood sugar and needle apparatus for measuring glucose on blood level which is partly due to the growing number of diabetics, part of a program of measures introduced by the Government of the Republic of Macedonia by introducing centralized procurement of insulin strips to measure blood sugar.

By tracking the consumption of insulin improves the basics for quality procurement and reliable supply of quality and reliable insulin.

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